Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems	))))))	PS Docket No. 17-239

COLORADO PUBLIC UTILITIES COMMISSION REPLY TO NOTICE OF INQUIRY

Introduction and Background

These comments are respectfully submitted by the Colorado Public Utilities Commission (COPUC) to the Federal Communications Commission in response to its Notice of Inquiry adopted on September 26, 2017, in its Inquiry Concerning 911 Access, Routing and Location in Enterprise Communications Systems, PS Docket 17-239.

The COPUC commends the Commission for undertaking this NOI. Progress has been made in the establishment of uniformity of access to E911 services through ECS. Many states have passed some form of ECS legislation requiring some subset of the recommendations of the National Emergency Number Association's (NENA) Model Multi-Line Telephone System (MLTS) Legislation[1], but many states, including Colorado, have not. Even where states have passed ECS legislation to this effect, the requirements vary from one state to another[2]. Voluntary efforts led by the Commission to improve E911 access over ECS in hotels have been largely effective in regard to how ECS are configured in major, national hotel chains, but there are still many ECS installations throughout the nation, in hotels, schools, office buildings, and industrial complexes that may not have be configured for direct dialing of 9-1-1, deliver precise and accurate location information, or support on-site notification. Even the federal legislation currently being reconciled in the House Energy and Commerce Committee, while a significant advancement, falls short by not requiring the appropriate routing of 9-1-1 calls from ECS (or MLTS) systems to an appropriate Public Safety Answering Point (PSAP), as well as fails to require ECS to deliver precise and accurate location information to the PSAP.

Colorado's own MLTS statute requires only that MLTS operators notify end users if direct dialing of 9-1-1 is not available or if Automatic Number Identification or Automatic Location Information

[1] https://c.ymcdn.com/sites/www.nena.org/resource/resmgr/Standards/NENA_06-750_v3_Model_Legisla.pdf

[2] As demonstrated by the chart displaying the different ECS requirements by states in Appendix B of the NOI.

isn't delivered[3]. The COPUC's only role in oversight of ECS is in the authority it has to promulgate rules to implement this statute[4]. However, the COPUC also has authority over Basic Emergency Service[5] and oversight regarding the establishment of 9-1-1 surcharges[6], and as such it has an interest in ensuring the integrity and effectiveness of the 9-1-1 system as a whole. That includes ensuring that Public Safety Answering Points receive the information they need in order to properly process 9-1-1 calls for service and dispatch first responders.

It is in this spirit that the COPUC issues the following responses to the Commission's NOI.

Responses

¶ 19. *"...we seek information on the type and number of subscribers, businesses, enterprises, and other entities employing legacy and IP-based ECS, including whether such subscribers are using premises-based or cloud-based systems. We also seek information on the total number of individual telephone numbers associated with ECS, as well as data on the percentage of 911 traffic originating from ECS. The 2016 National 911 Progress Report issued by the National Highway Traffic Safety Administration (NHTSA) contains data from 11 states on the total number of incoming 911 calls from ECS."*

The COPUC does not have information regarding the total number of ECS subscribers, and cautions the Commission that the data provided in the 2016 National 911 Progress Report may be misleading in this regard. Colorado is one of the states that submitted data on the number of ECS 9-1-1 calls received in 2016, but that number is based on the class of service provided in 9-1-1 ALI data. Calls that are received at the PSAP with a class of service of 3, 4, or 5 ("Residence PBX," "Business PBX," or "Centrex," respectively) were included in the total of ECS 9-1-1 calls that Colorado provided to NHTSA, but it's possible that not all ECS are presenting with those class of service codes. As more ECS use interconnected VoIP interfaces to the public switched telephone network (PSTN), it is possible that some ECS are presenting to the PSAPs as class V, or "VoIP". In other words, there is a possibility that the number of 9-1-1 calls originating from ECS users may be underrepresented based on the data the states have available to them.

"Are there additional data on the number and frequency of ECS-originated 911 calls? Do PSAPs track ECS calls separately from wireline, wireless and VoIP 911 calls?"

PSAPs generally track calls by the ALI class of service, which, as explained above, may result in undercounting the true number of 9-1-1 calls originating from ECS users.

[3] § 29-11-106, C.R.S.
[4] § 29-11-106(3), C.R.S.
[5] § 40-15-201(2), C.R.S.
[6] § 29-11-102(2)(b), C.R.S.

¶ 22. *"How precise should location information be when a caller uses ECS to attempt to reach 911? In the case of an office building or multi-unit dwelling, should ECS provide the precise location of the office or apartment from which the ECS call was made?"*

The COPUC supports the NENA Technical Requirements Document On Model Legislation E9-1-1 for Multi-Line Telephone Systems, which recommends that residential MLTS (or ECS) provide a distinct location for each residence[7], and that business MLTS be required to provide an Emergency Response Location which will, at the minimum, specify the building and floor number of the caller[8]. NENA also recommends that "temporary residences", such as hotels, be required to either provide a specific location (such as a room number) for each calling station or enable the ECS to relay the specific location to the PSAP[9].

¶ 23. *"We also seek comment on the role of onsite emergency or security personnel in ECS configurations. To what extent are ECS configured so that 911 calls are routed solely to an answering point within the enterprise, such as a campus police station or facility guard desk? To what extent are ECS configured to route calls to an external emergency answering point but also to notify an onsite emergency contact? What are the advantages and disadvantages of these configurations, and what safeguards or best practices should be followed with them?"*

The COPUC does not have any information on the extent to which ECS are configured to route calls solely to an internal answering point within the enterprise. However, we believe it is crucial that all 9-1-1 calls from within ECS be routed to a PSAP that is staffed by qualified personnel capable of either dispatching proper first responder personnel to the scene of the incident or to expeditiously transfer the call to an agency that can.

Campus police departments often serve as PSAPs, dispatching certified law enforcement officers for the campus, and as such routing 9-1-1 calls to the campus PSAP may be appropriate. Routing calls to private security guard desks, however, may significantly delay needed response from the appropriate law enforcement, fire department, or emergency medical service agency. In those situations, it should be required that the ECS be configured to route 9-1-1 calls to the appropriate PSAP and support simultaneous notification to the enterprise's private security.

¶ 24. *"We also seek information on alternative 911 call handling and fallback mechanisms in use or available for ECS. In particular, we seek comment on the reliance by ECS on remote call centers that receive and process 911 calls when the call does not include sufficient location information to route the call automatically to the nearest PSAP. In those circumstances, ECS 911 calls may be transferred to a remote call center located in a different state or even outside the United States. Call takers at these centers attempt to identify the physical location of the caller by asking the caller questions about his or her location. Once the call center has enough*

[7] Page 15.
[8] Page 16.
[9] Page 17.

information, it attempts to route the call to the appropriate PSAP. We seek comment on how many remote call centers provide these 911 fallback services. What is the volume of 911 calls received by such call centers from ECS, and how does this volume compare to calls received from non-ECS networks?"

The COPUC does not have definitive information on how often this happens or how many of these default answering centers exist. However, we have received reports from PSAPs in Colorado that some calls relayed to them through default answering centers have been significantly delayed, and some of these calls were relayed to the PSAP by a non-U.S. call center.

¶ 32. *"We seek information on the costs of provisioning ECS to support E911 access, routing, and location. Who bears these costs and how are they apportioned in the marketplace?"*

The costs for supporting 9-1-1 access from ECS should be borne by the ECS vendors or the owner of the ECS. We would strongly object to any attempt to put the costs for upgrading ECS to provide proper 9-1-1 access on local or state 9-1-1 funding sources.

"In the states that have E911 legislation and/or regulations for ECS, is there any evidence that the cost of complying with the legislation has had a substantial adverse effect on the purchase and deployment of new ECS?"

We are unaware of any evidence of Colorado's MLTS legislation having a "substantial adverse effect on the purchase and deployment of new ECS".

¶ 33. *"We seek comment on whether improving access to E911 in an ECS environment can improve the speed at which emergency personnel and services can reach the caller, with a resulting improvement in the health and safety of the caller, and the magnitude of this presumed benefit."*

Yes. Improving access to E911 in an ECS environment will undoubtedly improve the speed of emergency response, and any improvement in the speed of emergency response will have a resulting improvement in the likely outcomes of the incident. It's difficult to know what the magnitude of the presumed benefit would be, since it is difficult to estimate the scope of the problem, but in any instance where a caller is unable to reach 9-1-1 because they don't know they have to dial another digit first, or because their call is diverted to an on-site guard desk which is unable to properly handle and respond to their call, there is a chance that the inability to properly access 9-1-1 services may result in injury, property damage, or death that could have been otherwise avoided.

"Given the state of ECS technology, how much of a speed increase can we reasonably expect in the future?"

The “speed increase” of improved access to 9-1-1 service from ECS is very case-specific, and is not really a function of the state of ECS technology. If an ECS requires a caller to dial “9” or another digit before calling 9-1-1, the time lost while a caller attempts and fails to call 9-1-1 before remembering to use the prefix digit will vary from one caller to another. In some cases, the call may never go through, so a discussion of what the “speed increase” is from requiring direct dialing of 9-1-1 is the wrong way to frame the question.

Similarly, if an ECS distributed through several different buildings present to the PSAP with only one address, no floor number or room number, and no other indication of the caller’s location, and no extension number to help locate the caller, the response time for law enforcement, fire response, and EMS personnel will be greatly increased.

¶ 34. *“Consumer expectations are very important in emergency situations. We seek comment, on what expectations consumers may have when calling 911 from an ECS station. Given that the emergency number 911 is one of the most ubiquitous fixtures in the American public safety landscape, do consumers expect that 911 calls from an ECS will be quickly routed to the correct PSAP and that help will be promptly dispatched to the caller’s location? Are consumers aware of different steps in calling 911 (depending on environment), the difference in type and depth of information callers may have to give to the 911 call taker, and other unique requirements that may apply in an ECS environment?”*

The public education campaign to call 9-1-1 in an emergency has been wildly successful, to the point that our professional experience indicates anecdotally, from speaking to members of the public about 9-1-1 service, that most members of the public expect 9-1-1 to work everywhere, every time, in every circumstance. We have not educated the public that in some circumstances they may have to dial “9” or “8” before dialing “9-1-1”, nor do we tell them that in some cases the public safety telecommunicator may know their location and in some cases they may not. Nor should we add that degree of nuance to our public education. The success of 9-1-1 is that it is simple for the public to remember and use, and complicating that education will diminish its success. In an emergency, the average person will generally fall back on what they have been taught, which is to call “9-1-1”, and as such we need to ensure that dialing 9-1-1 is sufficient for them to reach a PSAP that can process their request for assistance and send first responders to their location.

¶ 35. *“In many instances, consumers in office buildings, campus, hotel and other enterprise environments have access to their personal wireless phones as well as to ECS facilities. In such circumstances, what impact, if any, does the availability of wireless phones have on consumer decisions whether to use ECS or wireless to make a 911 call?”*

Whether or not a caller uses an ECS station sitting on their desk or in their hotel room versus their cell phone may depend on a lot of factors, such as how convenient is it for them reach their ECS station phone versus their cell phone, or whether their cell phone has a strong cellular signal at the time.

"Are consumers aware that there may be differences in how an ECS 911 call is treated when compared to a wireless 911 call?"

As stated in answer to paragraph 34, anecdotal evidence indicates that the public is generally not aware of the different capabilities and requirements of different vectors for calling 9-1-1.

"Are consumers more likely to use wireless phones to call 911 in hotel or business environments due to uncertainty regarding the ability to access 911 from ECS facilities in those environments?"

The COPUC does not have information regarding whether the public is more likely to use wireless phones to call 9-1-1 in hotel or business environments, but there are certainly circumstances in which a caller may use either device to attempt calling 9-1-1. As such, it is imperative to ensure that both methods will result in the caller reaching a PSAP capable of helping them. Due to the current state of wireless technology, wireless calls are less likely to connect successfully from indoor locations. Likewise, wireless 9-1-1 calls placed from indoors are less likely to be associated with accurate and precise location information. While the industry and the FCC have had an intense and ongoing discussion about improving indoor wireless location accuracy, including the provision of floor numbers or "z-axis" location, this technology is not yet available. As such, it is even more imperative that 9-1-1 calls made via ECS are reliable and contain useful location information.

"We seek comment on the extent to which consumers might know that within an ECS environment, the ability to dial 911 directly, and have that call received by a PSAP, is not universal. We also are interested in consumer expectations for 911 location accuracy in the context of an ECS environment. For example, when calling 911 via ECS from a multistory building, what, if any, information do callers expect the PSAP to receive identifying the floor and room in which the call originated?"

Again, anecdotal experience indicates that most members of the public are not aware of the differences in capabilities or requirements for calling 9-1-1 from different types of devices. Consumers expect call to 9-1-1 to go through and for the 9-1-1 call taker to know their location, regardless of what type of device they are using to make the call.

"Are there unique issues that persons with disabilities may encounter when calling from an ECS environment?"

Yes. Callers who are deaf, deaf-blind, hard of hearing, or have speech impairments may have difficulty communicating their location to the 9-1-1 call taker. As such, it is imperative that the PSAP receive location information specific enough and accurate enough for first responders to locate the caller without additional verbal communication from the caller. While not specifically contemplated by the Americans with Disabilities Act, ECS that does not take advantage of

existing technology to provide location information puts deaf, deaf-blind, hard of hearing, and speech impaired callers at a disadvantage when using ECS to call 9-1-1, a violation of the spirit of the ADA.[10]

The necessity for location information to be relayed to the PSAP without the verbal assistance of the caller would also apply to callers who don't know their location, or who due to a medical emergency may be disoriented or unable to speak, or who may need to maintain silence for their own safety.

¶ 37. *"We seek to update the record on the extent to which the states have passed statutes or implemented rules that require ECS operators to provide E911."*

Colorado's MLTS statute, § 29-11-106, C.R.S., was passed in 2001, but it only requires that MLTS (or "ECS") operators disclose to end users of their phone system, in writing, if dialing an additional digit is required prior to dialing "9-1-1", and if the end user may need to provide their phone number and location to the 9-1-1 call taker due to the fact that the ECS does not provide that information to the PSAP.

¶ 38. *"Does it continue to be the case, as the Commission found in the E911 Scope Order, that the unique needs and circumstances of residential and business ECS users are suited to state-level action?"*

While 9-1-1 remains a locally provided service, the states and the Federal Communications Commission have and will likely continue to share jurisdiction over the regulation of 9-1-1 services. There are certain aspects of 9-1-1 service that are best regulated by the state in order for the regulation to fit the specific needs of the state's population and expectations. Other aspects of 9-1-1 service are better regulated at a federal level to ensure nationwide consistency and ubiquity of service.

Many American workers travel a great deal as part of their occupations. Expecting them to know the different requirements to make a 9-1-1 call through an ECS in Colorado, Texas, and New York is unrealistic. The same is true of Americans traveling for leisure to Colorado, California, or Alaska. Additionally, a single cloud-based ECS may serve facilities in more than one state. As such, nationwide consistency is required for the E911 capabilities of ECS. Specifically, ECS should be required to allow direct access to 9-1-1 without dialing an additional digit, to provide accurate and specific location information, and to route to an appropriate PSAP. These requirements should be federally mandated in order to achieve nationwide consistency. It should be the case that a traveler in any state will be able to pick up any ECS phone, dial 9-1-1, and reach an appropriate PSAP which will have access to the caller's location if it's so equipped.

[10] 42 U.S. Code Chapter 126. https://www.ada.gov/pubs/adastatute08.pdf

¶ 39. *"Does it continue to be the case, as the Commission found in the E911 Scope Order, that the unique needs and circumstances of residential and business ECS users are suited to state-level action?"*

Voluntary action is best applied in the development of best practices and standards, but without mandatory requirements it will be impossible to know that all ECS providers and operators are complying with the practices and standards that will bring about the ubiquity and consistency of service described in our response to paragraph 38. If direct dialing, location information, and proper routing of 9-1-1 calls is voluntary, and if even one ECS provider chooses not to participate in the voluntary standards, then the end users of that ECS provider's systems are vulnerable.

If there are instances when a mandatory requirement is truly onerous or unnecessary, ECS vendors, installers, or owners, may apply for a waiver of that particular requirement. It may be appropriate to delegate waiver review and approval to the states, as they will potentially have a better understanding of how the ECS operates in the context of the state's 9-1-1 system.

¶ 40. *"Should additional voluntary best practices or voluntary technical or operational standards be established to support access to E911 for ECS? By which entities, and via what processes, should such best practices or standards be established, and who should monitor their implementation? What role, if any, should the Commission play in the creation of such standards or practices? What specific issues should standards resolve?"*

We don't have any comment at this time on what best practices or standards should continue to be developed, but to the extent that additional practices and standards are needed, we believe the National Emergency Number Association has proven its leadership in this area and should be used as a resource by the Commission. The Commission can provide additional support by holding workshops for the development of standards and by continuing to refresh the public record, as it is through the issuance of this NOI.

¶ 41. *"What goals should best practices or standards aim to accomplish?"*

The goal of best practices and standards should be to create a uniformity and ubiquity of service that establishes a minimum acceptable level of service for the public.

"Are there any incentives that the Commission or other government agencies could provide to encourage the implementation of E911 over ECS?"

No. The implementation of E911 over ECS should not be optional.

¶ 42. *"We seek comment on whether we should continue to refrain from adopting rules requiring ECS implementation of E911."*

We believe there is a role for federal regulation in the implementation of E911 over ECS. As stated earlier, this is an area where nationwide consistency and ubiquity of service is highly desirable, and that can only be accomplished through federal regulation or statute.

"We seek comment on any statutory provisions that grant the Commission authority to adopt rules that would apply to enterprise owners, ECS operators (including hosted service providers), and ECS vendors or equipment manufacturers."

As stated in the NOI in paragraph 9, "The Commission found that Congress had granted it broad authority to address public safety concerns in wire and radio communications, **including with respect to services that offer substantially similar wireline and wireless alternatives**." [Emphasis added.] ECS are substantially similar to other wire services that are interconnected to the PSTN, and as such, the "broad authority" that Congress had granted the Commission applies.

If the version of Kari's Law currently undergoing reconciliation in Congress is signed into law, then the issue of direct dialing and on-site notification will be required by that statute. However, the issues of appropriate routing and delivery of sufficiently precise location information will continue to be issues that need addressing. By exercising its broad authority to address public safety concerns in communications services, the Commission can make a difference that will greatly improve the effectiveness of E911 services over ECS, and thereby save lives and property.

Conclusion

The COPUC appreciates the opportunity to provide the Commission with comment on this crucial topic, and looks forward to participating in future proceedings to improve access to 9-1-1 services from ECS. It is our hope that the actions of the Commission can help make 9-1-1 the truly universal service that it was always intended to be.

Respectfully submitted,

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